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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,441	10/08/2003	Hiroshi Komine	11-1137	7118

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EXAMINER
GOLUB, MARCIA A

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	**Application No.** 10/681,441	**Applicant(s)** KOMINE, HIROSHI	
	Examiner Marcia A. Golub	**Art Unit** 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *08 October 2003*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Levenson (U.S. Pat. 6,496,634).

Regarding **claims 1, 4-6**, Levenson discloses, a device and a method for shifting the output of a laser to an "eye-safe" wavelength. More specifically a Raman laser comprising:

Fiber coupled array of semiconductor lasers (5/4) [101, 102] (Fig 10)

Output wavelength of the laser is 942.8 nm (5/2-3)

Hollow core photonic band gap fiber [100] (Fig 8, Fig 10)

Core of the fiber filled with H_2 gas (7/49-50)

Output wavelength shifted to "eye-safe" level 1550 nm (4/66-67)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levenson as applied to claim 6 above, and further in view of Bobbs et al. (U.S. Pat 4,922,495).

Regarding **claim 7**, Levenson discloses, a device and a method for shifting the output of a laser to an "eye-safe" wavelength as applied above. He does not disclose a Stokes seed source coupled to the hollow core fiber. However, combining Stokes seed source with the Raman laser is well known in the art, as evidenced by Bobbs (Fig.1). Bobbs discloses a Raman amplifier comprising: optical fiber Raman cell (Abstract) filled with H_2 gas (2/41) and a Stokes seed source.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Bobbs into the device of Levenson by providing a Stokes seed source for the Raman laser. The ordinary artisan would have been motivated to modify Levenson in the manner set forth above for at least the purpose of amplifying the laser signal.

Claims 2, 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levenson as applied to claim 1 above, and further in view of Grudinin et al. (U.S. Pub. 2003/0021302).

Regarding **claims 2, 3 and 8**, Levenson discloses, a device and a method for shifting the output of a laser to an "eye-safe" wavelength as applied above. As an example he uses a pump laser with an output wavelength of 942.8 nm and H_2 as a Raman medium, he also mention using D_2 as a Raman medium (7/54). Levenson does not specify using a Yb fiber laser with an output wavelength 1060-1120 nm. Grudinin discloses using Yb-doped fiber laser (YDFL) designed to lase between 1060-1120 nm (paragraph 3) to pump a Raman laser. Since the Raman shift for D_2 is 2991 cm^{-1} (Table 1 of Levenson) using D_2 in combination with the YDFL laser will result in an output of 1552 nm (@ 1060 nm input), which is the desired output. Therefore, using YDFL laser is consistent with the intended use of the device disclosed by Levenson.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Grudinin into the device of Levenson by using a YDFL laser to pump the D_2 Raman medium. The ordinary artisan would have been motivated to modify Levenson in the manner set forth above for at least the purpose of producing a wavelength signal of 1550 nm, which is a wavelength commonly used in optical communication systems.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levenson and Grudinin as applied to claim 8 above, and further in view of Bobbs et al. (U.S. Pat 4,922,495).

Regarding **claim 9**, Levenson and Grudidnin disclose, a device and a method for shifting the output of a laser to an "eye-safe" wavelength as applied above. They do not disclose a Stokes seed source coupled to the hollow core fiber. However, combining Stokes seed source with the Raman laser is well known in the art, as evidenced by Bobbs (Fig.1). Bobbs discloses a Raman amplifier comprising: optical fiber Raman cell (Abstract) filled with H_2 gas (2/41) and a Stokes seed source.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Bobbs into the device of Levenson and Grudinin by providing a Stokes seed source for the Raman laser. The ordinary artisan would have been motivated to modify Levenson in the manner set forth above for at least the purpose of amplifying the laser signal.

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia A. Golub whose telephone number is 571-272-0218. The examiner can normally be reached on M-F 8-5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zandra Smith
Primary Examiner

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